

What is claimed is:

1. A cardiac rhythm management device, comprising:
  - 5 an atrial sensing channel for sensing atrial depolarizations;
  - a ventricular sensing channel for sensing ventricular depolarizations;
  - a controller for interpreting sense signals generated by the sensing channels and detecting atrial or ventricular senses when the sense signals exceed respective atrial and ventricular sensing threshold values;
  - 10 wherein the controller is configured to measure atrial and ventricular rates;
  - wherein the controller is programmed to blank the atrial sensing channel after detection of a ventricular sense for a specified blanking interval; and,
  - wherein the controller is configured to shorten the atrial sensing blanking interval when a ventricular rate above a specified limit rate is detected.
- 15 2. The device of claim 1 wherein the blanking of the atrial sensing channel after a ventricular sense is discontinued when a ventricular rate above the specified limit rate is detected.
- 20 3. The device of claim 1 wherein the controller is configured such that a post-ventricular atrial refractory period used to limit an atrial-triggered pacing rate and/or prevent pacemaker mediated tachycardia is unaffected when the blanking interval of the atrial sensing channel is shortened.
- 25 4. The device of claim 1 wherein the controller is further programmed to interpret sense signals from the atrial sensing channel with greater specificity when the blanking interval of the atrial sensing channel is shortened.

5. The device of claim 1 wherein the controller is further programmed to raise the atrial sensing threshold to a specified value when the blanking interval of the atrial sensing channel is shortened.
- 5 6. The device of claim 5 wherein sense signals from the atrial sensing channel are filtered with a narrower bandwidth when the blanking interval of the atrial sensing channel is shortened.
- 10 7. The device of claim 1 further comprising:
  - an atrial pacing channel;
  - an atrial defibrillation channel for delivering defibrillation shocks to an atrium;
  - and,
  - wherein the controller is configured deliver an atrial tachyarrhythmia therapy if an atrial rate in an atrial tachyarrhythmia zone is detected.
- 15 8. The device of claim 6 further comprising:
  - a ventricular pacing channel;
  - a ventricular defibrillation channel for delivering defibrillation shocks to a ventricle;
  - 20 wherein the controller is configured to deliver ventricular pacing pulses in accordance with an anti-tachycardia pacing mode when a ventricular rate in a tachycardia detection zone is detected and to deliver a ventricular defibrillation shock when a ventricular rate in a fibrillation detection zone is detected.
  - 25 9. The device of claim 7 wherein the controller is configured such that atrial tachyarrhythmia therapy is tried first if a ventricular rate above the specified limit rate but below the fibrillation detection zone is detected and the atrial rate is higher than the ventricular rate.

10. The device of claim 7 wherein the atrial tachyarrhythmia therapy is selected from atrial anti-tachycardia pacing and an atrial defibrillation shock.
11. The device of claim 1 wherein the controller is configured to vary the length of 5 the atrial sensing blanking interval in accordance with the detected ventricular rate.
12. The device of claim 11 wherein the controller is configured to vary the specificity of the atrial sensing channel in accordance with the detected ventricular rate.

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13. A method for operating a cardiac rhythm management device, comprising:
  - sensing atrial depolarizations through an atrial sensing channel;
  - sensing ventricular depolarizations through a ventricular sensing channel;
  - interpreting sense signals generated by the sensing channels and detecting atrial 15 or ventricular senses when the sense signals exceed respective atrial and ventricular sensing threshold values;
  - measuring atrial and ventricular rates;
  - blanking the atrial sensing channel after detection of a ventricular sense for a specified blanking interval; and,
- 20 shortening the blanking interval for the atrial sensing channel when a ventricular rate above a specified limit rate is detected.

14. The method of claim 13 further comprising leaving unaffected a post-ventricular atrial refractory period used to limit an atrial-triggered pacing rate and/or 25 prevent pacemaker mediated tachycardia when the blanking interval for the atrial sensing channel is shortened.

15. The method of claim 13 further comprising interpreting sense signals from the atrial sensing channel with greater specificity when the blanking interval for the atrial sensing channel is shortened.
- 5 16. The method of claim 13 further comprising raising the atrial sensing threshold when the blanking interval for the atrial sensing channel is shortened.
- 10 17. The method of claim 13 further comprising filtering sense signals from the atrial sensing channel with a narrower bandwidth when the blanking interval for the atrial sensing channel is shortened.
18. The method of claim 13 wherein blanking of the atrial sensing channel after a ventricular sense is discontinued when a ventricular rate above a specified limit value is detected.
- 15 19. The method of claim 13 further comprising:
  - an atrial defibrillation channel for delivering defibrillation shocks to an atrium;
  - delivering ventricular pacing pulses in accordance with an anti-tachycardia pacing mode when a ventricular rate in a tachycardia detection zone is detected;
  - 20 deliver a ventricular defibrillation shock when a ventricular rate in a fibrillation detection zone is detected; and,
  - delivering an atrial tachyarrhythmia therapy if an atrial rate in an atrial tachyarrhythmia zone is detected.
- 25 20. The method of claim 18 wherein the atrial tachyarrhythmia therapy is selected from atrial anti-tachycardia pacing and an atrial defibrillation shock.